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## ROOSEVELT'S NOTES ON BRAZILIAN TREES\*

Theodore Roosevelt was admittedly the world's authority on the big game mammals of North America—and he was always greatly interested in birds—but his interest in trees and plants was not so keen. His observation of the fauna, however, did not prevent him from giving a thought to trees, particularly when they were striking or unusual. His book, "Through the Brazilian Wilderness" is full of interesting references to trees.

It was always the dramatic that appealed to Theodore Roosevelt. He was interested in animals because they were full of action. Like Roosevelt himself, they *did* things. Even in his descriptions of trees it is interesting to note that it was their dramatic element and not still charm that usually attracted his attention. For instances, here is a graphic description of parasitic fig-trees engaged in strangling a group of palms. It is a picture of still life, yet it is dramatic:

"In one grove the fig-trees were killing the palms, just as in Africa they kill the sandalwood trees. In the gloom of this grove there were no flowers, no bushes; the air was heavy; the ground was brown with moldering leaves. Almost every palm was serving as a prop for a fig-tree. The fig-trees were in every stage of growth. The youngest ones merely ran up the palms as vines. In the next state the vine had thickened and was sending out shoots, wrapping the palm stem in a deadly hold.

"Some of the shoots were thrown round the stem like the tentacles of an immense cuttlefish. Others looked like claws, that were hooked into every crevice, and round every projection. In the stage beyond this the palm had been killed, and its dead carcass appeared between the big, winding vine trunks; and later the palm had disappeared and the vines had united in a great fig-tree. Water stood in black pools at the foot of the murdered trees, and of the trees that had murdered them. There was something sinister and evil in the dark stillness of the grove; it seemed as if sentient beings had writhed themselves round and were strangling other sentient beings."

Later on he gives a more cheerful picture of tropic vegetation.

"We passed through wonderfully beautiful woods of tall palms, the ouaouaca palm—wawasa palm, as it should be spelled in English. The trunks rose tall and

\* It is a pleasure to print this as a contribution to the movement to memorialize our greatest recent American, whose untimely death removed a much needed man of the hour. The Roosevelt Memorial Association of 1 Madison Avenue, New York, has kindly allowed, through the courtesy of Mr. Roosevelt's publishers, the reprinting of these notes on trees collected during the now famous Brazilian Expedition.—ED.

strong and slender, and the fronds were branches twenty or thirty feet long, with the many long, narrow green blades starting from the midrib at right angles in pairs. Round the ponds stood stately burity palms, rising like huge columns with great branches that looked like fans, as the long, stiff blades radiated from the end of the midrib. One tree was gorgeous with the brilliant hues of a flock of party-colored macaws. Green parrots flew shrieking overhead."

In this same book of Brazilian exploration, Colonel Roosevelt gives a fascinating picture of a journey up a stream picturesquely described as the "River of Tapirs." He and his party went up this river in a launch, and the Colonel's description of the scene reminds one of Joseph Conrad's "Heart of Darkness."

"Ahead of us," wrote the Colonel, "the brown water stream stretched in curves between endless walls of dense tropical forest. It was like passing through a gigantic greenhouse. Wawasa and burity palms, cecropias, huge figs, feathery bamboos, strange foliage as delicate as lace, trees with buttressed trunks, trees with boles rising smooth and straight to lofty heights, all woven together by a tangle of vines, crowded down to the edge of the river. Their drooping branches hung down to the water, forming a screen through which it was impossible to see the bank. Rarely one of them showed flowers—large white blossoms, or small red or yellow blossoms. More often the lilac flowers of the begonia-vine made large patches of color. Innumerable epiphytes covered the limbs, and even grew on the roughened trunks."

There are frequent references to the wawasa palms and the Colonel noticed on one of them, a veritable giant in height, a mass of purple orchids growing from the side of the trunk, half-way to the top. On another big tree, not a palm, he saw more than a hundred troupials' nests (the troupiat is the South American oriole). He also mentions seeing palms of different varieties with short fronds. Wild plantains were plentiful and there were huge trees like those that grow in California.

At other times the trees would be few and far between, or else they would be scrubby and unprepossessing.

"Day after day; we rode forward across endless flats of grass and of low open scrubby forest, the trees standing far apart and in most places being but little higher than the head of a horseman. Some of them carried blossoms, white, orange, yellow, pink; and there were many flowers, the most beautiful being the morning glories. Among the trees were bastard rubber trees, and dwarf palmetto; if the latter grew more than a few feet high their tops were torn and dishevelled by the wind."

Members of the Roosevelt party also found many fossil-tree trunks which the Colonel believed to be of Cretaceous age.

Here is a pretty picture that the Colonel paints:

"In the deep valleys were magnificent woods, in which giant rubber-trees towered, while the huge leaves of the low-growing pacova or wild banana, were conspicuous in the undergrowth. Great azure butterflies flitted through the open, sunny glades, and the bell-birds sitting motionless, uttered their ringing calls from the dark stillness of the columned groves."

While going down the famous River of Doubt, now the Rio Teodoro (River Theodore), the undergrowth was so dense that trees leaned over the river from both banks, forming barriers, which the men in the leading canoes cleared away with their axes. There were many palms and the Colonel noticed a handsome species of bacaba. He also gives an interesting description of stopping at a bee-tree to get honey.

"The tree was a towering giant of the kind called milk-tree, because a thick milky juice runs freely from any cut," he wrote. "Our camaradas eagerly drank the white fluid that flowed from the wounds made by their axes. I tried it. The taste was not unpleasant, but it left a sticky feeling in the mouth."

He also speaks particularly about the cajazeira tree, whose fruit he found delicious, and makes the suggestion that this fruit would make a valuable addition to our orchards, pointing out that, although tropical, the tree thrives when domesticated and propagates rapidly from shoots. He advises the Department of Agriculture to experiment and see if this tree would not grow in Southern California and Florida.

While going down the Rio Teodoro, Colonel Roosevelt saw many trees, the tops of which were covered with yellow-white blossoms and red blossoms. Then he mentions a peculiarity that demonstrates his closeness of observation:

"Many of the big trees were buttressed at the base with great thin walls of wood. Others, including both palms and ordinary trees, showed an even stranger peculiarity. The trunk, near the base, but sometimes six or eight feet from the ground, was split into a dozen or twenty branches or small trunks which sloped outward in tent-like shape, each becoming a root. The larger trees of this type looked as if their trunks were seated on the tops of the pole frames of Indian tepees."

While it was the fauna more than the flora that interested Colonel Roosevelt, as has been remarked at the beginning of this article, nevertheless his remarkable powers of observation were always in evidence, which lends interest to everything that he

describes, whether it is a lion charging upon him with the speed of an express train, trees that strangled each other, or trees that dripped with honey when wounded. This observation was instinctive with Theodore Roosevelt because he was a born naturalist.

### SHORTER NOTES

HELIANTHUS BESSEYI BATES. — *Helianthus besseyi* J. M. Bates was described in American Botanist, February, 1914, p. 17, from specimens collected at Red Cloud, Nebraska. Last spring Mr. Bates was kind enough to send me some of the tubers, which I planted in my garden at Boulder, May 5. The tubers are elongate-fusiform, and yellowish. Today (September 14) the plants are past flowering, though the closely related *H. alexandri*,\* a few feet away, is in full bloom. The plants are about 5 feet high when well grown, and are strict, with comparatively few floriferous branches, entirely in the style of *alexandri*. The stems are reddish and scabrous, as in *alexandri*, but rougher. Leaves opposite, alternate above, as in *alexandri*. Leaves subovate, conspicuously broader than in *alexandri*, and somewhat paler, the bases broad-cuneate, the petioles fairly long and distinctly winged. As in *alexandri*, the upper surface is rough, the lower soft-hairy, with the hairs on the midrib appressed. The rays are orange, as in *alexandri*, but are much shorter, about 30 mm. (in *alexandri* 41 mm. long and 14.5 wide). The achenes are the same in both, but the disc-corollas of *besseyi* are shorter, with paler lobes. The involucre bracts are spreading, but short (about 9 mm. long, base of involucre to end of longest phyllary about 12 mm.), with blackish bases (entirely pale green in *alexandri*), and there is the appearance of an extra row. The leaves are entirely dull above. The plant is quite distinct from *H. nebrascensis* (Ckll.), which also occurs at Red Cloud, and although it is close to the Michigan *H. alexandri*, it must evidently be separated from it, having a number of salient characters. It adds one more to the assemblage of closely related species grouping around *H. tuberosus*.

\* *Helianthus tuberosus alexandri* Ckll., Amer. Naturalist, LIII: 188; *H. alexandri* Ckll., Monthly Bull. Calif. State Comm. Horticulture, VIII: 249. (1919.)